BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Diploma in Building Services Engineering Pearson BTEC International Level 3 Extended Diploma in Building Services Engineering
Unit number and title	Unit 26: Heating, Ventilation and Air Conditioning Design
Learning aim(s) (For NQF only)	A: Understand the operational characteristics of ventilation and air-conditioning requirements for buildings
Assignment title	Assignment 1 – Designing Ventilation and Air-Conditioning, Operational Characteristics
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are employed as a trainee engineer with a heating and ventilation company that works with building contractors who specialise in the development of commercial buildings. The company has received an enquiry from a contractor who has a contract to build a three storey office block. Your company has been asked to make a proposal for the ventilation and air-conditioning system for the building. The project manager of the team you work in has asked you to work with them on the proposal. Ventilation is to be provided via a mechanical system that incorporates a heater/cooler battery. Figure 1 shows the floor plan for the second floor. The following design data are also provided: Required internal temperature 21^0c Minimum outside temperature -1^0c Air changes per hour 3 Height between floors 3.5m Suspended ceilings will be used Assume windows make up 20% of the wall area U Values (W/m^2K): External walls 0.20 Roof 0.18 Floor 0.00 Windows 1.80
Task 1	Your manager has asked you to write an introductory

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<table>
<tr><td></td><td>section for the proposal that explains and considers the operation characteristics that will affect the selection of:

• the terminal diffusers/grills
• ductwork and
• air-handling units

for the second floor. A conclusion should be provided that gives reasons for your preferred choices.</td></tr>
<tr><td>Checklist of evidence required</td><td>A word-processed document that is referenced and includes images to support the written text.

The document will examine the characteristics of:

• Terminal diffusers/grills
• Ductwork
• Air-handling units

and will conclude with giving preferred options with the reasons for these.</td></tr>
<tr><td colspan="2">Criteria covered by this task:</td></tr>
<tr><td>Unit/Criteria reference</td><td>To achieve the criteria you must show that you are able to:</td></tr>
<tr><td>A.P1</td><td>Explain the operational characteristics of the ventilation and air-conditioning system.</td></tr>
<tr><td>A.M1</td><td>Assess the elements of the ventilation and air-conditioning system.</td></tr>
<tr><td>A.D1</td><td>Justify the ventilation and air-conditioning system, including all the component parts and their respective operational features.</td></tr>
<tr><td>Sources of information to support you with this Assignment</td><td>Burberry, P, Environment and Services (Mitchells Building Series), (8th edition), Routledge, 2015, ISBN 9781138167780.
This book explains principles of services installations and environmental considerations and is relevant to the content of this unit.

Greeno, R, Building Services Handbook (8th edition), Routledge, 2015, ISBN 9781138805637.
This book is a handbook covering all aspects of building services in a concise manner.

McMullan R. Environmental Science in Building, 7th Edition Palgrave Macmillan, 2012 ISBN 9780230290808
The most recognised book which is considered a credible text regarding building science.

Arvind Agrawal, Air Conditioning Design, 1st Edition New Academic Science Ltd, 2018 by ISBN 978-1781831229
This book is aimed at undergraduate students which covers the design technique in a simple step-by-step method from first principles.</td></tr>
</table>

	Journals Building Services Engineering Research & Technology (BSERT), Sage Publishing This is CIBSE's quarterly journal containing useful research relevant to all aspects of building services engineering. http://journals.sagepub.com/home/bse P & HE Journal, Chartered Institute of Plumbing and Heating Engineers (CIPHE) This is the CIPHE online journal which covers a broad range of areas relating to plumbing and heating. http://www.ciphe.org.uk/professional-members/publications/ Websites http://www.cibse.org/ This is the website of Chartered Institute of Building Services Engineers (CIBSE) which is the professional body for building services engineers. The website contains information about the codes, products and industry updates. http://www.modbs.co.uk/ This is the website of Modern Building Services (MBS) covering a wide range of building services engineering sectors. Further Resources may be found at: qualifications.pearson.com/en/support/published-resources.html **Note to Tutors: This list of resources should be customised to reflect the resources available within the centre**
Other assessment materials attached to this Assignment Brief	*Figure 1 – Second floor plan.*